1 Introduction
Introduction

This reference manual contains manual reference pages and other reference information on the kernel support routines, data structures, services, and macros essential for developing HP-UX drivers. See HP-UX Driver Development Guide for further information on how to use these functions.
The Intended Audience

Porting an existing device driver is not a trivial task. Writing a device driver is even more complex. Using this manual to port or write a driver assumes that you know how to:

- Write programs in the C language.
- Understand the basic concepts of writing a driver.
- Understand the functionality of the hardware for which you are writing the driver.
- Read the HP-UX System Administration Tasks manual and perform system administration.
- In areas such as virtual memory, I/O, and file systems, understand the HP-UX and/or UNIX operating systems.

These assumptions are not meant to discourage anyone, but you should not plunge onward unless you know the HP-UX (UNIX) operating system, the C language, and the implications of writing drivers. The “Support/Compatibility Disclaimers” section describes the support provided by Hewlett-Packard Company.

NOTE

This book contains many examples of C programs to help you design device drivers. Because of page width restrictions, some long lines of code exceed the space available and break in unintended places. Please treat these “broken” lines as one line. We recommend that you use the sample files included with this manual, when possible, rather than retyping the examples.
Support/Compatibility Disclaimers

Since drivers function at the level of the kernel, Hewlett-Packard Company (HP) reminds you of the following things:

- Adding your own driver to HP-UX requires relinking the driver into HP-UX. With each new release you should plan on recompiling your driver in order to reinstall it into the new HP-UX kernel. Many header files do not change. However, drivers typically use some header files that could change across releases (i.e., you can have some system dependencies).

- The information in this manual is correct, to HP's knowledge, but the information can change (e.g., kernel routines and header files).

- HP provides support services for HP products, including HP-UX. Products, including drivers, from non-HP parties receive no support, other than the support of those parts of a driver that rely on the documented behavior of supported HP products.

- Should difficulties arise during the development and test phases of writing a driver, HP may provide assistance in isolating problems to determine if:
  - HP hardware is not at fault; and
  - HP software (firmware) is not at fault by removing user-written kernel drivers.

- When HP hardware, software, and firmware are not at fault, you should seek help from the third party from whom you obtained software or hardware.
Reference Page Format

All manpage entries in this section follow an established topic format, but not all topics are included in each entry.

NAME  Gives the name of the entry and briefly states its purpose.

SYNOPSIS  Lists source code of the include file that defines the structure.

PARAMETERS  Defines the parameters of the routine.

DESCRIPTION  Provides general information about the structure, routine, or macro.

STRUCTURE MEMBERS  Lists all accessible structure members

RETURN VALUES  Describes the values the routine can return.

CONSTRAINTS  Identifies when a function can not be called.

WARNINGS  Provides suggestions to avoid potential problems or pitfalls that may result in lost time or data.

EXAMPLES  Gives sample program segments demonstrating the routine.

SEE ALSO  Provides pointers to related topics.
Reference Page Sections

Reference page references are in the form pagename(section), where pagename is the name of the page and section is the section name. Pages in this manual are assigned to the following section names, for example, bcopy(KER2), where the numbers correspond to those in HP-UX Reference.

- **CDIO3**: A function available to drivers in any CDIO.
- **CDIO4**: A structure used by CDIO function.
- **KER2**: A kernel function available to all drivers.
- **KER4**: A structure used by kernel functions.
- **NET3**: A function available to networking drivers.
- **NET4**: A structure used by networking functions.
- **NET_DRV**: A driver-supplied networking function.
- **PCI3**: A function available in the PCI CDIO.
- **PCI5**: PCI errata.
- **SCSI3**: A function available in the SCSI CDIO.
- **SCSI_DRV**: A driver-supplied SCSI function.
- **WSIO3**: A function available in the WSIO CDIO.
- **WSIO4**: A structure used by WSIO functions.
- **WSIO_DRV**: A driver-supplied kernel function.

Reference pages in HP-UX Reference have one-digit section numbers, sometimes accompanied by a single letter, for example, open(2).